

CLAIMS

What is claimed is:

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1. A method for maintaining application operations within a suboptimal grid environment, comprising:

submitting an application to at least one resource node from among a plurality of
10 resource nodes within a grid environment;

monitoring a performance status of said at least one resource node;

comparing said performance status with an operational requirement specified for when
15 said application is operating at said at least one resource node; and

responsive to said performance status not meeting said operational requirement, adjusting
use by said application of said at least one resource node, such that said application continues to
operate when suboptimal conditions arise in a grid environment.

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2. The method according to claim 1 for maintaining application operations within a suboptimal grid environment, wherein adjusting use by said application of said at least one resource node further comprises:

5 locating at least one other resource node from among said plurality of resource nodes within said grid environment that meets said operational requirement specified for said application when said application is operating at said at least one other resource node; and

relocating said application to said at least one other resource node within said grid
10 environment.

3. The method according to claim 1 for maintaining application operations within a suboptimal grid environment, wherein adjusting use by said application of said at least one resource node further comprises:

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identifying a first module of said application to shutdown; and

sending a message to said at least one resource node to shutdown said first module.

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4. The method according to claim 3 for maintaining application operations within a suboptimal grid environment, wherein identifying a first module of said application to shutdown further comprises:

5 searching an application profile for said application to identify said first module, wherein said application profile defines said first module and prioritizes said first module.

5. The method according to claim 3 for maintaining application operations within a suboptimal grid environment, further comprising:

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determining whether said application can continue to operate without said first module;

and

responsive to a determination that said application cannot continue to operate without

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said first module, returning an error message for said application to a client system requesting said application; and

responsive to a determination that said application can continue to operate without said

first module, determining whether a next module should be identified to be shutdown if said

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performance status does not meet said operational requirement after shutting down said first module.

6. The method according to claim 1 for maintaining application operations within a suboptimal grid environment, wherein said at least one resource node operates on at least one platform for which said operational requirement is specified.

5 7. The method according to claim 1 for maintaining application operations within a suboptimal grid environment, further comprising:

responsive to receiving a job request for said application, accessing a profile for said application, wherein said profile specifies said operational requirement for said application for a
10 plurality of platforms on which said plurality of resources nodes are distributed.

8. The method according to claim 7 for maintaining application operations within a suboptimal grid environment wherein said profile for said application further comprises an XML expression of a plurality of attributes of said application and a performance range for said
15 application when operating on each of said plurality of platforms.

9. The method according to claim 1 for maintaining application operations within a suboptimal grid environment, further comprising:

20 responsive to receiving a job request for said application, accessing a profile for said application, wherein said profile specifies at least one module of said application and a priority for shutting down said at least one module when said use of said at least one resource node is

adjusted.

10. The method according to claim 9 for maintaining application operations within a suboptimal grid environment, wherein said profile for said application further comprises an XML expression of a plurality of attributes of said application and a performance range for said application to achieve when shutting down said at least module.

11. The method according to claim 1 for maintaining application operations wherein said application is one from among an stand-alone application, a service, an agent, and a controller operating within said grid environment.

12. A system for maintaining application operations within a suboptimal grid environment, comprising:

15 a grid management controller for controlling routing of an application for operation on at least one resource node from among a plurality of resources controllable within a grid environment;

monitoring means for monitoring a performance status of said at least one resource node;

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comparison means for comparing said performance status with an operational requirement specified for when said application is operating at said at least one resource node;

and

adjustment means for adjusting use by said application of said at least one resource node, responsive to said performance status not meeting said operational requirement.

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13. The system according to claim 12 for maintaining application operations within a suboptimal grid environment, wherein said adjustment means further comprises:

means for locating at least one other resource node from among said plurality of resource
10 nodes within said grid environment that meets said operational requirement specified for said application when said application is operating at said at least one other resource node; and

means for rerouting said application to said at least one other resource node within said grid environment.

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14. The system according to claim 12 for maintaining application operations within a suboptimal grid environment, wherein said adjustment means further comprises:

means for identifying a first module of said application to shutdown; and

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means for sending a message to said at least one resource node to shutdown said first module.

15. The system according to claim 14 for maintaining application operations within a suboptimal grid environment, wherein said means for identifying a first module of said application to shutdown further comprises:

a application profile for said application, wherein said application profile defines said first module and prioritizes said first module; and

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means for searching said application profile to identify said first module.

16. The system according to claim 14 for maintaining application operations within a suboptimal grid environment, further comprising:

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means for determining whether said application can continue to operate without said first module; and

means, responsive to a determination that said application cannot continue to operate without said first module, for returning an error message for said application to a client system requesting said application; and

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means, responsive to a determination that said application can continue to operate without said first module, for determining whether a next module should be identified to be shutdown if said performance status does not meet said operational requirement after shutting down said first module.

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17. The system according to claim 12 for maintaining application operations within a suboptimal grid environment, further comprising:

means, responsive to receiving a job request for said application, for accessing a profile
15 for said application, wherein said profile specifies said operational requirement for said application for a plurality of platforms on which said plurality of resources nodes are distributed.

18. The system according to claim 17 for maintaining application operations within a suboptimal grid environment wherein said profile for said application further comprises an XML expression of a plurality of attributes of said application and a performance range for said application when operating on each of said plurality of platforms.

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19. The system according to claim 12 for maintaining application operations within a suboptimal grid environment, further comprising:

means, responsive to receiving a job request for said application, for accessing a profile
10 for said application, wherein said profile specifies at least one module of said application and a priority for shutting down said at least one module when said use of said at least one resource node is adjusted.

20. The system according to claim 19 for maintaining application operations within a
15 suboptimal grid environment, wherein said profile for said application further comprises an XML expression of a plurality of attributes of said application and a performance range for said application to achieve when shutting down said at least module.

21. The system according to claim 12 for maintaining application operations wherein said
20 application is one from among an stand-alone application, a service, an agent, and a controller operating within said grid environment.

22. A computer program product for maintaining application operations within a suboptimal grid environment, comprising:

a recording medium;

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means, recorded on said recording medium, for submitting a application to at least one resource node from among a plurality of resource nodes within a grid environment;

means, recorded on said recording medium, for monitoring a performance status of said

10 at least one resource node;

means, recorded on said recording medium, for comparing said performance status with an operational requirement specified for when said application is operating at said at least one resource node; and

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means, recorded on said recording medium, for adjusting use by said application of said at least one resource node, responsive to said performance status not meeting said operational requirement.

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23. The computer program product according to claim 22 for maintaining application operations within a suboptimal grid environment, wherein said means for adjusting use by said application of said at least one resource node further comprises:

5 means, recorded on said recording medium, for locating at least one other resource node from among said plurality of resource nodes within said grid environment that meets said operational requirement specified for said application when said application is operating at said at least one other resource node; and

10 means, recorded on said recording medium, for relocating said application to said at least one other resource node within said grid environment.

24. The computer program product according to claim 22 for maintaining application operations within a suboptimal grid environment, wherein said means for adjusting use by said application of said at least one resource node further comprises:

15 means, recorded on said recording medium, for identifying a first module of said application to shutdown; and

20 means, recorded on said recording medium, for sending a message to said at least one resource node to shutdown said first module.

25. The computer program product according to claim 24 for maintaining application operations within a suboptimal grid environment, wherein identifying a first module of said application to shutdown further comprises:

5 means, recorded on said recording medium, for searching a application profile for said application to identify said first module, wherein said application profile defines said first module and prioritizes said first module.

26. The computer program product according to claim 24 for maintaining application
10 operations within a suboptimal grid environment, further comprising:

means, recorded on said recording medium, for determining whether said application can continue to operate without said first module; and

15 means, recorded on said recording medium, for returning an error message for said application to a client system requesting said application, responsive to a determination that said application cannot continue to operate without said first module; and

means, recorded on said recording medium, for determining whether a next module
20 should be identified to be shutdown if said performance status does not meet said operational requirement after shutting down said first module, responsive to a determination that said application can continue to operate without said first module.

27. The computer program product according to claim 22 for maintaining application operations within a suboptimal grid environment, further comprising:

5 means, recorded on said recording medium, for accessing a profile for said application, wherein said profile specifies said operational requirement for said application for a plurality of platforms on which said plurality of resources nodes are distributed.

28. The computer program product according to claim 22 for maintaining application operations within a suboptimal grid environment, further comprising:

means, recorded on said recording medium, for accessing a profile for said application, wherein said profile specifies at least one module of said application and a priority for shutting down said at least one module when said use of said at least one resource node is adjusted.

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29. A method for managing resource usage by an application in a grid environment, comprising:

accessing an application profile for an application requested by a client, wherein said application profile specifies an operational requirement for said application for each of a plurality of types of platforms across which a plurality of resources available for said application are located;

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submitting said application to a first selection of resources from among said plurality of resources located on a first platform;

5 monitoring whether said application operates in said first selection of resources according to said operational requirement for said first platform; and

responsive to said application not operating according to said operational requirement, rerouting said application to a second selection of resources, wherein said second selection of
10 resources are located on a second platform which meets said operational requirement according to a type of platform of said second platform.

30. The method according to claim 29 for managing resource usage by a application in a grid environment, wherein said first platform and said second platform are a same type of platform.

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31. The method according to claim 29 for managing resource usage by a application in a grid environment, wherein said first platform and said second platform are different types of platforms.

20 32. The method according to claim 29 for managing resource usage by a application in a grid environment, wherein said application profile is an XML schema.

33. A method for reconfiguring an application in a grid environment, comprising:

accessing an application profile for an application requested by a client, wherein said application profile specifies an operational requirement for said application and a plurality of

5 independent processing modules of said application;

submitting said application to a selection of resources from among said plurality of resources located on a first platform;

10 monitoring whether said application operates in said selection of resources according to said operational requirement for said application; and

responsive to said application not operating according to said operational requirement, directing said selection of resources to shutdown a selection of said plurality of independent
15 processing modules of said application, such that said application is reconfigured to continue operation within suboptimal conditions in said grid environment.

34. The method according to claim 33 for reconfiguring a application in a grid environment, wherein directing said selection of resources to shutdown a selection of said plurality of

20 independent processing modules of said application further comprising:

identifying a first module prioritized within said application profile for shutdown;

directing said selection of resources to shutdown said first module; and

responsive to said application continuing not to operate according to said operational

5 requirement, shutting down additional modules from among said plurality of independent
processing modules.